



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN RE APPLICATION OF:

AKIHIRO OGAWA ET AL.

SERIAL NO. 09/532,024

GROUP ART UNIT: 1761

EXAMINER: LESLIE WONG

FOR: MILK BEVERAGE

DECLARATION UNDER 37 C.F.R. 1.132

HONORABLE COMMISSIONER OF PATENTS & TRADEMARKS
WASHINGTON, D.C. 20231

SIR:

Now comes Akihiro OGAWA, a citizen of Japan, and a resident of c/o Mitsubishi Chemical Corporation, Yokohama Research Center, 1000, Kamoshida-cho, Aoba-ku, Yokohama-shi, Kanagawa-ken, Japan, who declares and says that:

1. I graduated from the Division of Engineering, Graduate School, Kyushu University in March, 1995 (Ph. D).
2. I have been an employee of Mitsubishi Chemical Corporation since April 1995 and have been engaged in the study of the food emulsifiers and food emulsion stability.
3. I am one of the inventors of U.S. Patent Application, Serial No. 09/532,024.
4. I have read the Office Action dated September 1, 2005 and Interview Summary (November 17, 2005), have

understood the Examiner's rejection of the invention claimed in the above application. Under my control, the following experiments were conducted.

Experiments

Experiment 1 (corresponding to Example 1 of the present invention):

40 g of roasted coffee beans were extracted with 400 g of desalted water heated to 95°C, thereby obtaining a coffee extract solution. 313 g of the thus obtained coffee extract solution was mixed with 375 g of milk and 84 g of granulated sugar and further with an emulsifier as shown in Table 1. The emulsifier was used in an amount of 0.1 % by weight based on the total weight of the resultant mixture. Then, desalted water was added to the mixture to obtain an emulsion having a total weight of 1,500 g. After sodium bicarbonate was added to the emulsion to adjusting the pH thereof to 6.8, the emulsion was intimately mixed and homogenized at a temperature of 60 to 70°C under a pressure of 150 kg/50 kg.cm⁻² using a high-pressure homogenizer. Thereafter, the obtained emulsion was sterilized at 137°C for 60 seconds (hold time for sterilization) using a plate-type UHT sterilizer. 30 g of the thus obtained emulsion was sampled into a test tube under an aseptic condition and

cooled therein, thereby obtaining a milk coffee. The obtained milk coffee showed excellent emulsion stability.

Therefore, the commercial value of the obtained milk coffee was high. The results are shown in Table 1.

Experiment 2:

The same procedure of Experiment 1 was conducted except that the amount of emulsifier was changed to 5.0 % by weight, to obtain a milk coffee. The obtained milk coffee was highly foaming and had high viscosity. Also, the obtained milk coffee had a bitter taste resulting from the emulsifier.

Therefore, the obtained milk coffee had no commercial value.

Experiment 3:

The same procedure as defined in Experiment 1 was conducted except that an emulsifier as shown in Table 1 was used, to obtain a milk coffee. In the obtained milk coffee, wax-like matters were floating in the liquid. Also, the obtained milk coffee had an oily taste resulting from the emulsifier.

Therefore, the obtained milk coffee had no commercial value.

Table 1

	Experiment 1	Experiment 2	Experiment 3
<u>Emulsifier</u>			
<u>Polyglycerol fatty acid ester</u>			
Kind	Decaglycerol stearic acid ester A ¹⁾	Decaglycerol stearic acid ester A ¹⁾	Decaglycerol behenic acid ester ²⁾
Cloud point (°C)	95	95	< 50
Content (% by weight) based on total emulsifiers	50	50	100
<u>Sucrose fatty acid ester</u>			
Kind	Sucrose palmitic acid ester ³⁾	Sucrose palmitic acid ester ³⁾	-
HLB	16	16	-
Content (% by weight) based on total emulsifiers	50	50	0
<u>Total concentration of emulsifier (%)</u>	0.1	5.0	5.0
Tasty	good	bitter	oily
Commercial value	high	no	no

(Notes)

- 1): Decaglycerol stearic acid ester A: produced by Mitsubishi Chemical Foods Co., Ltd. (tradename: RYOTO-POLYGLYESTER S-10D)
- 2): Decaglycerol behenic acid ester: produced by Mitsubishi Chemical Foods Co., Ltd. (tradename: RYOTO-POLYGLYESTER B-100D)
- 3): Sucrose palmitic acid ester: produced by Mitsubishi Chemical Foods Co., Ltd. (tradename: RYOTO-SUGAR ESTER P-1670)

Remarks

Experiment 1 corresponds to Example 1 of the present invention. In Experiment 1, the concentration of emulsifier was 0.1% and the obtained milk coffee had a good taste and high commercial value.

In Experiment 2, the concentration of emulsifier was 5.0% and out of scope of the present invention. The obtained milk coffee was highly foaming and had high viscosity. Also, the obtained milk coffee had a bitter taste resulting from the emulsifier. Therefore, the obtained milk coffee had no commercial value.

In Experiment 3, the concentration of emulsifier was 5.0% and out of scope of the present invention and further the cloud point of polyglycerol fatty acid ester is $< 50^{\circ}\text{C}$ and out of scope of the present invention. In the obtained milk coffee, it was observed that wax-like matters were floating in the liquid. Also, the obtained milk coffee had an oily taste resulting from the emulsifier. Therefore, the obtained milk coffee had no commercial value.

5. I declare further that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

6. Further, deponent saith not.

Date: _____

<unexecuted>

Akihiro OGAWA